parameters described herein, produced a silicon carbide film having a dielectric constant of less than 4 with improved barrier layer properties, such as an interlayer diffusion resistance of about 100% greater than silicon carbide film produced by commercially available alkylsilane precursors, such as trimethylsilane (TMS). This is unexpected because it has been observed that phenyl groups increase the porosity of the deposited dielectric material, thereby reducing the interlayer diffusion resistance of the deposited dielectric material. The barrier layers are preferably deposited adjacent dielectric layers comprising silicon, oxygen, and carbon, which have a dielectric layer of less than about 3.

Please replace paragraph **[0024]** with the following paragraph:

[0024] The barrier layer may further be doped with oxygen, nitrogen, boron, or phosphorous to reduce the dielectric constant of the deposited material. A ratio of dopant to organosilicon compound in the processing gas is between about 1:5 or greater, such as between about 1:5 and about 1:100. Phosphorus and/or boron doping of the low k silicon carbide layer may be performed by introducing phosphine (PH_3) or borane (BH_3), or borane derivative thereof, such as diborane (B_2H_6), into the chamber during the deposition process.

IN THE CLAIMS:

Please cancel claims 21 and 23 without prejudice, and amend the following claims:

1. (Amended) A method for processing a substrate, comprising:

depositing a barrier layer on the substrate by introducing a processing gas comprising an organosilicon compound into a processing chamber, wherein the organosilicon compound has the formula $SiH_a(CH_3)_b(C_6H_5)_c$, wherein a is 1 or 2, b is 1 or 2, and c is 1 or 2, and reacting the processing gas to deposit the barrier layer, wherein the barrier layer has a dielectric constant less than 4; and